PROJECT MANAGEMENT SYSTEM WITH WBS AND VERSION CONTROL

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Signatures

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Preface

This document represents the Software Requirements Specification for Project management system with WBS and Version control system. The document begins with an Introduction section that describes the purpose of the document and what is considered to be in the scope of this document as well as what is outside the scope of this document.

The next section is an Overall Description of the requirements and functions. This section includes the overall constraints that the project is working within as well as the assumptions made by the project as far as the defining the requirements is concerned. Lastly, the project dependencies are also listed in this section.

The Specific Requirements section comes next and is the most important section of this document. This section goes into detail about each specific requirement of the Project. A description, use case with sequence of events, and any related requirements is given for each requirement. This section also gives a detailed description of the External Interfaces for the project including a description of the user interface for the software.

The Specific Requirements section also describes the Performance Requirements that are to met by the Project. Design Constraints and Standards Compliance are also considered in this section. Lastly, various System Attributes are discussed including Maintainability, Security, and Portability.

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1   Introduction

1.1 Purpose

The purpose of the Project management with WBS and version control is to work on requirements of the project. Included with the description of the requirements is a description of any constraints or assumptions that the project is working within.

This document also provides a description of any project dependencies that need to be explicitly expressed. Along with the requirements descriptions, it is also the purpose of this document to describe any performance requirements that need to be met. If there are any standards that need to be considered when developing the software are also listed.

Lastly, the purpose of this document is to communicate the system attributes of the Project management system. These system attributes include reliability, availability, scalability, maintainability, and portability.

1.2 Scope

It is within the scope of the Project management with WBS and version control to describe the specific system requirements of the project. This would include performance requirements, system constraints, and project assumptions. Any specific detail that is needed about the standards or technology used to define these requirements, constraints, and assumptions are within the scope of this document.

1.3 Definitions, Acronyms, and Abbreviations

Table of Definitions, Acronyms, and Abbreviations

Definition, Acronym, or Abbreviation	Description
SRS	Software Requirements Specification.
WBS	Work breakdown structure
VSC	Version Control

1.4 References

Table of References

References	Description
Software Development Plan	The Software Development Plan from the project management system was referenced.

2 Overall Description

2.1 Product Perspective

In this project we are going to build a task management tool which will help the teams to manage their tasks and helps the team leader to assign/create tasks for his/her teammates, the team leader will also be able to see the progress made by the teammates. The teammates are supposed to post their progress in the tool with proper description of how much work they have finished and how much work is still left unfinished. Our tool will also consist of a version control which will help the users to commit/change/update any data without any hassle, we have took some inspiration from Git which is also a version control for GitHub, since Git is open source we were able to see how git functions smoothly and helps to reduce work, a version control also helps the administrator/leader to see the commits/changes in the tasks and it even helps the leader to see who made the most recent commit and the complete history of that specific or any commit. We aim to make our project completely open source in order to make things much better by accepting ideas/contribution from fellow developers.

2.2 Product Functions

The follow is a table of the requirements that the system SHALL meet. The list of requirements was produced from the initial project documentation provided by the requirements expert.

Table of Shall Requirements

ID	Origin	Shall Requirement
19	*Team Members*	*Login to the project with specific email, password and project ID. Can commit on previous files and add/delete new files.*
20	*Project Leader*	Login as admin with credentials like email,password and project ID. Can assign new members, remove the members from the projects and has the access to email, phone of the members. Can commit a new change or rollback the previous ones, sets new milestones and tracks the progress.
21	*WBS*	Create a new branch and node for all the milestones and track the progress of the work that has finished and for those which are yet not completed.
22	*Version Control*	The VCS helps the user in setting up new files and committing the previous files to the platform with ease, VCS also helps in easily telling the user about the last commit and who made the commit.
23	*Project*	Each project has a specific ID associated to it, each project has its own milestones are which are supposed to be covered before the deadline.

2.3 Constraints

The follow is a table of the design constraints that the system SHALL meet. The list of constraints was produced from the initial project documentation provided by the requirements expert.

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Table of Design Constraints

ID	Origin	Shall Requirement
1	Project Accessibility	The access of members and leader should be very smooth and swift since there are already a lot of Project Management platforms which make the process very swift and smooth
2	Version Control	Since managing and creating a smooth VCS is very difficult as it involves a lot of cases in which a error can be produced like merge conflicts and all.

2.4 User Characteristics

The following table identifies and describes the different users of the Project Management with WBS and Version Control. The information gathered about the different users of the system helped define what the software needs to do. Also, these users are referenced in the requirements and diagrams.

Table of User Characteristics

User	Description
Project Team Member	The project helps the project members in working all together on a single project, it also helps the members in working on a specifc module all together and see the most recent changes/commit made by whom.
Project Admin	The project admin can easily access all the necessary details about all its member and he/she can go and assign tasks for same by setting up some deadlines and track the same with the help of WBS and project progress bar.

2.5 Entity Relationships

Figure 1 shows the entity relationships for the Electronic Stamp project.

Figure 1 Entity Relationship Diagram
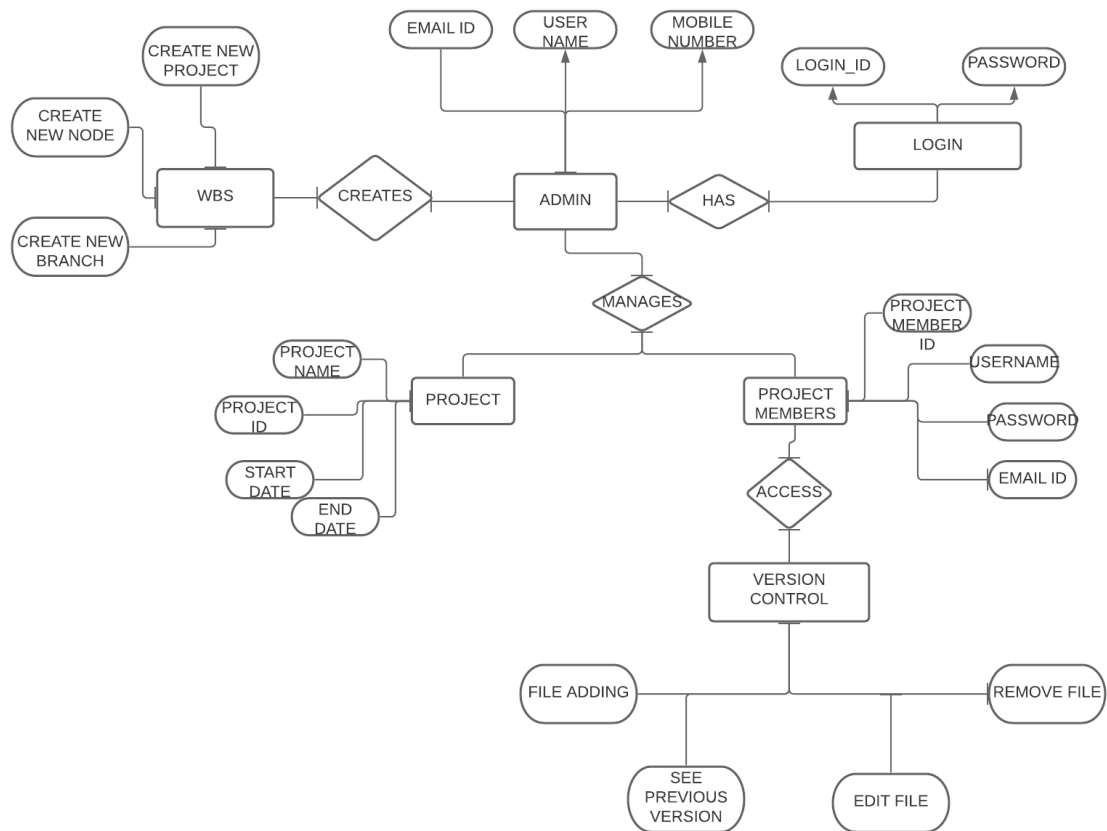
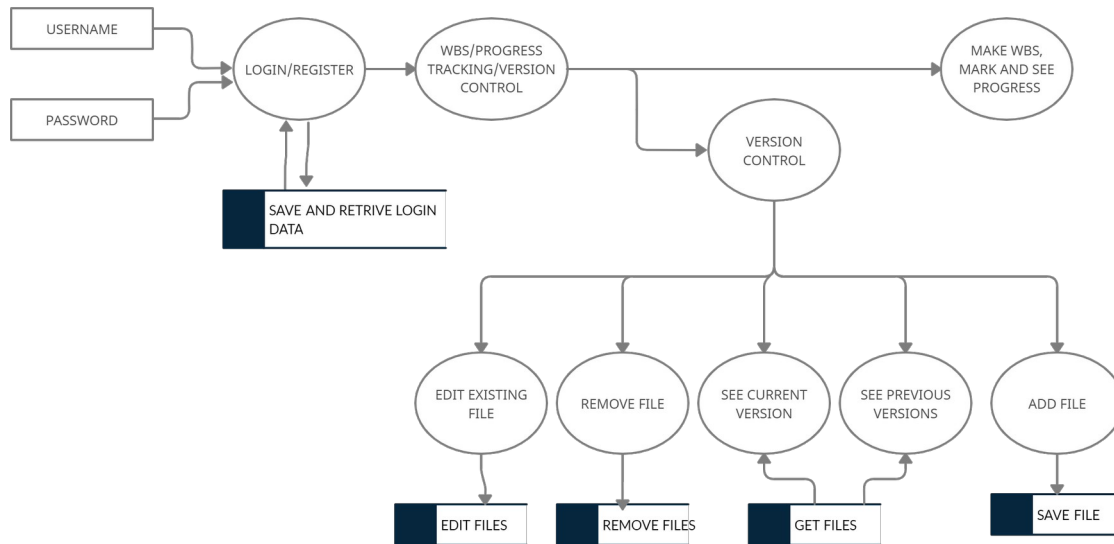## 2.6 Data Flows

The following figures represent the data flow diagrams of the Electronic Stamp software. The first data flow diagram, figure 2, is the top level data flow. This is followed by the more detail data flow of the Email Client Software.

Figure 2 Data Flow Diagram

2.7 Data Dictionary

The follow tables in this section make up the data dictionary for the Project Management with WBS and VSC. Using the Data Flow Diagrams, the following Data Dictionary elements were defined.

- Login
- Register
- WBS
- VSC
- Edit Existing file
- Remove file
- Add file

Table of Data Dictionary

Data Dictionary Attribute	Detail
Name	Login
Aliases	No
Where Used / How Used	Used for authenticating team members of specific project
Description	The Login function allows only the members assigned for that project to come n and work on their milestone and tasks, the same authentication is used when they access the VSC for pushing the code on the platform
Supplementary Information	The email will have an @ symbol which will help in validating the user and the password should be strong enough for the users safety ans security. The project which is unique for all projects will be used by the user to login.

Data Dictionary Attribute	Detail
Name	Register
Aliases	NO
Where Used / How Used	Interact with the user to take their email and password and give a recommendation for a strong password if the given one is weak
Description	The register function will help the user in registering them on the platform which will help the user to gain access to the platform. The register function will help the user to setup a strong password. The same password will be used by the user to authenticate themselves with VCS
Supplementary Information	The password strength will be taken care by the register function

Data Dictionary Attribute	Detail
Name	Work Breakdown Structure
Aliases	WBS
Where Used / How Used	Take he task from user(input) Display a WBS for the same(output)
Description	The project admin will have the access to edit the WBS according to its need but the team members will be able to view and update the task progress in same.
Supplementary Information	The WBS will be responsible to display the task progress and about how the tasks are going to finish.

Data Dictionary Attribute	Detail
Name	Version Control
Aliases	VSC
Where Used / How Used	Authenticate email stamp (input)
Description	Authenticate email of the user, let the user push new file or allow the user to remove a file or let the user push some code on an existing file

Data Dictionary Attribute	Detail
Name	Edit existing file
Aliases	no
Where Used / How Used	authenticate email stamp (input)
Description	Let user access the existing file present on the platform and let the user commit some code on it

Data Dictionary Attribute	Detail
Name	Add new file
Aliases	NO
Where Used / How Used	authenticate email stamp (input)
Description	Let user add the new file on the platform and let the user commit some code into it and allow other members to commit as well
Supplementary Information	

Data Dictionary Attribute	Detail
Name	Remove file
Aliases	NO
Where Used / How Used	authenticate email stamp (input)
Description	Let user remove a specific file from platform and ask the user to delete the file and show the reason to other members when they see the file being removed

2.8 State Transitions

Please refer to Appendix A for the State Transition Diagrams.

2.9 Assumptions

The following table lists the assumptions made by the requirements that define the Project Management Structure with wbs and version control.

Assumption	Description
Secure Channel between all the members and project	The defined requirements assume that there is a method for secure transaction between the Member and the project code files.

3   Specific Requirements

3.1 System Features

3.1.1 Login/Registering

3.1.1.1 Introduction

The Project management software with WBS and VSC shall allow a user to register/login themselves via a mail , password and a unique project ID given to them by the project admin. The user then accordingly inputs his/her email and password to gain access over the project on platform.

3.1.1.2 Functional Requirements

Purpose: Sending the user authentication message about whether they logged in or not

Input: Take email, password and project ID from the user.

Processing: Verify the email is correct and then verify whether the password matches with the given email or not. Then check whether the project ID exist or not

Output: Successful Authentication message

3.1.1.3 Stimulus Response

A) User tries to login with email, password

User Actions	System Actions
(1) Input mail, password, project ID	
	(2) Check whether the mail, password and project ID exists or not
	(3) If email, password matches and the project ID exist then generate a success message and let the user login
	(4) Let the user Log In
	(5) If email, password doesn't matches and the project ID exist then generate a error message
	(6) If email doesn't exist then take the user to register page
(7) Ask for email and password	
	(8) Validate the email and password and let the user register and navigate them to login page.

3.1.2 Work BreakDown Structure (WBS)

3.1.2.1 Introduction

The software has a feature called WBS which allows the project admins to edit the timeline and setup the milestones for all the given tasks. Only project admin can add a task and change its deadline, whereas the team members and just view the tasks and update the progress for same.

3.1.2.2 Functional Requirements

Purpose: Set up deadline for the project and milestone for each task

Input: Email, Username, Task name, deadline.

Processing: Verify whether the username exist in the project management software or not and make a chart accordingly

Output: Make a chart for the given deadlines of tasks

3.1.2.3 Stimulus Response

User Actions	System Actions
(1) Enter task name	
(2) Enter its deadline	
(3) Enter the username	
	(4) Verify if Username exists in project group or not
	(5) Make a chart accordingly for the tasks and let the team mates view the deadline.

3.1.3 Version Control (VSC)

3.1.3.1 Introduction

This feature allows the admin to keep the track of all the necessary changes easily and lets the user push a new file or remove or push some code to an existing file very smoothly. This even allows the admin and the respective team mates to find out who was the last person to commit the code in any given file.

3.1.3.2 Functional Requirements

Purpose: Allowing the user to commit the codes to the platform smoothly and securely which further allows the admin to get complete history of the commits.

Input: Email, password, action like add new file, remove file, push code to an existing file, create branches.

Processing: Process the user option very carefully in order to avoid any conflicts with the changes made by other users

Output: Success message or error message depending upon the error type that got reflected on when the user performed a specific request in VSC.

3.1.3.3 Stimulus Response

A) Reply to a Stamped Email (with stamp logged for Return Use.)

User Actions	System Actions
(1) Call authentication function to validate the mail, password of the user	
	(2) System Checks for presence of email
	(3) System reverts back by giving options to user about what to do (add, remove, push to exist)
(4) User chooses the desire option among the given ones	
	(5) VSC read the option of the users and reverts back to ask the user to input commands into it.
(6) User enters the command necessary to perform the action.	
	(7) The VSC then executes the commands and makes sure that there is no conflict nin the codes of all the team mates and reverts back with a success message

3.2 Design Constraints

The Project management software with wbs and VSC is extending using the figma tool for designing and prototyping the final product, which will be further used by us to code the project.

Table of Design Constraints

Design Constraint	Description
HTML, CSS, JavaScript	We will be using html, css and javascript to integrate our project with all the mentioned functionalities..

3.3 Standards Compliance

The following table lists the different standards that the project is to be in compliance with.

Table of Standards Compliance

Standard	Description
Public / Private Key Standard Suite	We will using different types of keys in our complete project since it involves a lot of interconnection between all the pages which help in maintaining the database successfully.

3.4 Software System Attributes

3.4.1 Reliability

Reliability in the Project management with WBS and VSC software will be ensured by thorough unit, milestone, and release testing. Comprehensive test scenarios and acceptance criteria will be established to reflect the necessary level reliability required of the software. The all delivered source code will be thoroughly tested using the established test scenarios until the acceptance criteria are satisfied by the software.

3.4.2 Security

The Project management with WBS and VSC software will utilize Public / Private key encryption. Every password created by a user will be digitally signed using the public and private key pair. The email will use the public key which will help in verifying the validity of the email. This will provide an proper key that is as secure as the public / private key encryption method is secure.

3.4.3 Maintainability

The Project management with WBS and VSC software extends the functionality of the present project management tools available now on internet. This tool will help the users in committing the files without any special need, all the things are just a click away from user.

3.4.4 Portability

As mentioned above, the Project management with WBS and VSC software uses the functionality of the HTML, CSS, JavaScript. Which helps us to make this specific platform available for all existing OS

It is safe to say that the implementation of the Project management with WBS and VSC software will be able to be ported to other system platforms that accept Web applications with little to no changes required. It is not safe to say that the Project management with WBS and VSC software will execute properly on the other system platforms with little or no change. Significant changes to the Project management with WBS and VSC may be required to ensure proper execution on other system platforms.

Appendix A – State Transition Diagrams